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ABSTRACT

In winter 1984, a study was conducted at North Seattle Community College to determine the correlation between students' reading levels and final grades in courses for which there were no prerequisites. The Stanford Reading Test was administered in 7 humanities course sections and 10 course sections from other disciplines. Study findings, based on the test scores and final course grades of 387 students, included the following: (1) there were statistically significant positive correlations between reading scores and final grades for 35% of the classes, i.e., Art 100, Music 100, Business 101.01, Psychology 110.04, Botany 112; and trends toward significance in an additional 18%, i.e., Business 101.02, Business 101.03, and Psychology 110.03; (2) no significant correlations existed where there was little variance in reading levels and grades and where both were high; and (3) reading and grades showed different correlations for different sections of the same course. Based on study findings, it was recommended: (1) that instructors participate in the assessment of the reading level of the materials used in class and of the degree to which course grades are determined by students' understanding of the reading materials, and (2) that this information be made available to students. (LAL)

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READING PROJECT

REPORT

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For

Developmental Education Advisory Committee

JC 840 504

North Seattle Community College

August, 1984

READING PROJECT REPORT

INTRODUCTION

This report summarizes the results of a project to determine what if any correlation exists between students' reading levels and final grades in NSCC courses for which there are no prerequisites. The project was conducted winter quarter, 1984 under the auspices of the Developmental Education Advisory Committee. Included were seven humanities courses and ten courses from other divisions for a total of 17 courses, 15 faculty, and 387 students.
Questions we sought to answer were:

1. What, if any, correlation exists between Stanford Reading Test scores and final grades?
2. What are the average reading scores of students entering classes for which there are no prerequisites?
3. What percent of variance is accounted for by reading as a predicator of a final grade?
4. What stanine appears necessary for reading success in classes for which there are no prerequisites?

PROCEDURE

During fall quarter, 1983, DEAC selected the ten sections from the college to be included in the study and the Humanities Division selected its seven sections. Criteria for selection were: the course had no stated prerequisite course or placement testing, the faculty agreed to participate, the course met during the day, inclusion of the course added to the breadth of the population. Once the classes had been identified, the instructors were contacted and asked to give the Stanford Reading Test (SRT) the second week of winter quarter, 1984. The Stanford Reading Test was selected because that is the test currently used for placement into developmental and college English. Once SRT scores for each student were obtained, those scores were kept confidential from the instructors so that the knowledge of reading levels would not influence final grades. (The Counseling Division scored the tests for the ten courses outside the Humanities Division and the Developmental English Coordinator and tutoring staff and maintained the scores for the Humanities Division.)

At the end of the quarter, a copy of the grade sheets for each course was obtained and students' grades were recorded next to their SRT scores. In order to do the correlation study, the literal and inferential reading scores for each student were added; for example, a student scoring 30 on the inferential questions and 25 on the literal questions would have a total of 55. Numerical values were assigned the letter grades: A--4, B--3, C--2, D--1, E--0; V, W, I grades were not included.

The F test was the statistical test selected to determine whether reading scores accounted for a significant proportion of the variance in the course grades, i.e. is a reading score a good predictor of course grade.[1] This test was selected because it is a more sensitive test than the Pearson Product Moment Correlation test.

RESULTS

Table A shows the correlations between grades and SRT scores. Statistically positive correlations at .01 confidence level were found for BUS 101.01, PSY 110.04 and MUS 100. At the .05 confidence level ART 100 and BOT 112 were added. Showing a trend toward significance between .05 and .10 were BUS 101.02, BUS 101.03, PSY 110.03. Since the F test is a strict statistical test and since our N for each class was usually under 30, it is probably acceptable to include those classes at .10 as showing significant correlations. There were eight of seventeen classes, then, that revealed a positive correlation between the Stanford Reading Scores and final grades.

[1] We are indebted to David Mitchell and Ralph Duffy for their help with the statistical analysis.

TABLE A: SIGNIFICANT CORRELATIONS

	.01	.05	.10	.10+
Art 100		x		
Drama 100				x
English 221				x
French 101				x
Hum 101				x
Speech 100				x
Ast 200				x
Bot 112		x		
Bus 101.02	x			
Bus 101.02			x	
Bus 101.03			x	
Elect 101.01				x
Elect 101.02				x
Psy 110.01				x
Psy 110.03			x	
Psy 110.04	x			
Mus 100	x			

The results also give us information about the average grade given per class, the average reading level, the average variance in grades and reading scores per class, and the per cent of variance the reading score accounted for. Table B summarizes those results.

TABLE B
CORRELATIONS, AVERAGE GRADES, AVERAGE READING SCORES, VARIANCE,
% OF VARIANCE ACCOUNTED FOR BY READING PER CLASS

	N	Corr x y	m g	sd y	v y	m x	sd x	v x	r^2
ART 100	32	.50	2.96	1.10	1.21	47.50	10.89	118.51	.25
DRA 100	20	.27	2.81	1.52	2.96	54.94	2.72	7.40	.074
ENG 221	21	.05	3.61	.98	.96	55.78	2.92	8.54	.003
FRE 101	28	.19	3.59	.73	.54	45.55	11.99	143.78	.031
HUM 101	28	.01	3.26	.96	.93	53.97	4.79	22.95	.000053
SPE 100	26	.33	3.35	.76	.56	50.75	8.90	79.25	.11
MUS 100	33	.54	2.69	1.05	1.10	48.92	10.94	119.67	.29
AST 100	15	.26	2.33	.98	.95	52.93	8.08	65.35	.066
BOT 112	16	.55	3.75	.58	.33	54.5	4.02	16.13	.30
BUS 101.01	25	.52	2.92	1.19	1.41	48.4	10.44	109.08	.27
BUS 101.02	22	.39	2.68	1.29	1.66	51.18	6.52	42.54	.15
BUS 101.03	22	.41	3.05	.84	.71	42.86	14.50	210.22	.17
ELEC 101.01	23	.02	3.65	.89	.78	49.57	11.30	127.62	2.57
ELEC 101.02	19	.12	3.37	1.17	1.36	51.68	7.45	55.56	.014
PSY 110.01	18	.20	2.39	1.09	1.19	52.44	7.67	58.85	.041
PSY 110.03	19	.43	1.79	1.18	1.40	47.21	10.59	112.18	.19
PSY 110.04	18	.62	2	1.57	2.47	50.33	6.95	48.24	.38

KEY

N = Number
x = reading score
y = grade
m = average, mean
v = variance
s.d. = standard deviation
r^2 = % of variance accounted for by reading

Table C compares grades of the general college classes with SRT stanines of 4 or above and lower than 4. Average reading scores at stanine 4 range from 33 to 42.

TABLE C Comparison of Stanine Received by Grade Received

	Stanine 4 or above				Stanine of lower than 4			
	C or Better		D/E		C or Better		D/E	
Classes	Students	%age	Students	%age	Students	%age	Students	%age
AST 100.04	12	80	2	13	1	7	0	0
BOT 112.01	16	100	0	0	0	0	0	0
BUS 101.01	20	80	2	8	1	4	2	8
BUS 101.02	17	77	4	18	0	0	1	4
BUS 101.03	16	73	0	0	6	27	0	0
EET 101.01	19	83	2	9	2	9	0	0
EET 101.02	17	89	1	5	1	5	0	0
PSY 110.01	14	78	3	17	1	5	0	0
PSY 110.03	13	68	4	21	1	5	1	5
PSY 110.04	10	56	8	44	0	0	0	0
	154		26		13		4	

It appears that most students received a score of C or better regardless of whether their stanine scores were above or below 4. Perhaps grading practices were such that almost no one received D or E grades or those who would have received these grades had withdrawn.

Table D examines reading stanines of students who withdrew. Again, this analysis was not completed for the Humanities classes.

Table D Comparison of Students who Withdrew with Stanine Placement

Classes	Number of Students Who Withdrew	
	Stanine of 4 or better	Stanine lower than 4
AST 100.04	3	0
BOT 112.01	0	0
BUS 101.01	1	1
BUS 101.02	1	1
BUS 101.03	2	1
EET 101.01	3	2
EET 101.02	0	1
PSY 110.01	8	1
PSY 110.03	9	1
PSY 110.04	5	0
	32	8

DISCUSSION

Similarity of Grades

These results show that when there is little variance in grades even though there is variance in reading scores, no significant correlation was found. For example, in FRE 101, there was a standard deviation of .73 for grades or very little variance, but high variance (143.8) in reading scores; yet FRE 101 did not show a significant correlation. The instructor reports that FRE 101 had several Vietnamese students who entered knowing some French; so while English reading scores were not high, these students' knowledge of French probably compensated.

Another example is ENG 221 (American Literature) where the average reading score was 55.7, seventh stanine, and the average grade was 3.6 or A to A-. In HUM 101, the average reading score was 53 and the average grade was B. It appears that when there is a high reading average and high homogenity in reading and grades it is more difficult to find a significant correlation. Lack of variance makes this F test less sensitive.

Necessary Reading Levels

Concerning the question of what stanine is necessary for success in a class for a grade of C or better, it appears the fourth stanine or scores of 33 to 42 is sufficient, especially in classes where the instructor knows reading is supplemented considerably through films, lectures, demonstration, and practice. We have been using the fifth stanine for entry into ENG 101; however, in cases where the writing was strong and one of the two stanines was at 4, we have placed the student into ENG 101. If divisions were to consider making recommendations to students about reading levels for certain classes, it appears the fourth stanine would be high enough.

It is important to note that these results are not conclusive enough for divisions to select a reading level and use that as the only criterion for placement into a class. It is equally important, on the other hand, to pay attention to the role of reading in a class and to identify expectations of students' competency in reading as well as the other communication skills as the students enter classes which are required and which have no prerequisites. Students reading at the fourth stanine frequently need more guidance in handling the reading material and taking notes.

Another interesting result is the realization that reading and grades show different correlations for different sections of the same course. In Psychology and Business classes, for example, only some of the sections had positive correlations. The instructors of those classes might want to discuss their differences in methods and expectations, as well as outcomes. Divisions might want to consider whether it makes a difference that multi-section courses appear to have different expectations.

CONCLUSIONS

1. There were statistically significant positive correlations between reading scores and final grades for 35% of the classes in this study--ART 100, MUS 100, BUS 101.01, PSY 110.04, BOT 112 and an additional 18% showing a trend toward significance--BUS 101.02, BUS 101.03 and PSY 110.03
2. There were enough significant relationships to suggest a need for faculty teaching courses for which there are no prerequisites to consider their expectations of students' reading skills and, perhaps, to make recommendations to students about necessary reading levels for such classes. Effective fall, 1984, all new liberal studies students enrolling in 5 or more credits will be advised to complete the Student Assessment System which will include taking the Stanford Reading Test and Writing Sample if they are enrolling in English; if the students are not enrolling in English, they will still be advised, oriented and tracked by the Counseling Division but they will not be tested. It remains for divisions, under the coordination of the Developmental Education Advisory Committee, to determine: a) whether all students should take a reading test, b) if so, whether the test should be the Stanford Reading Test or some other test, c) whether the minimum entry level should be the fourth stanine, and d) whether reading scores need to be supplemented with evaluation of writing.
3. Where there is little variance in reading levels and grades and where both are high, we found no significant correlations; this may be as much because of the low variance as because there is no relationship between reading and high grades.
4. Reading is only one factor that affects grades; this study could not account for the influence of other communication and study skills, methods of instruction, or student motivation.
5. Only grades were used to signify student success; we had no way to compare how much reading related to how much students mastered the course content.

NEXT STEPS

1. To learn in which classes reading ability is a significant factor, we need instructor participation. It will be important for each instructor first to determine reading levels of materials required in her/his class. This can be done fairly rapidly with software available in the IRC and should probably be done annually, or when text and other reading material is changed. Secondly, instructors need to assess how much the final grade is influenced by students actually completing and understanding the required reading. Some instructors assign material of high difficulty, but lecture so extensively that much of the required reading material is covered orally by them. Others may require that students master, integrate, and use reading material on their own. Obviously reading ability would be needed more by a student in the latter class. After faculty determine the amount and difficulty of reading materials required in their classes and determine the weight reading those materials contributes to the final grade, this information can be widely distributed to students--in class schedules, in the Counseling Center, in the Advising Center and by faculty. Such information will not only enable students to make wise registration choices, but it is also likely to encourage them to become self evaluative regarding their reading ability, i.e., they will be more inclined to learn their reading level, to think about how it impacts their class performance, and to consider enrolling in skills building classes if appropriate.
2. Through their divisions, individual instructors will also find it useful to identify their expectations or unstated prerequisites for students as they enter courses for which there are no prerequisites in the skills of reading, writing, listening, speaking and computation skills--in short, their functional literacy skills. Instructors could also find it enlightening to analyze ways in which they do or could do activities to strengthen students' literacy skills while learning the content of a specific course.

3. Another "next step" is to consider an assessment system for all students and to test all functional literacy skills. Reading tests won't be sufficient.
4. In addition, we ought to begin examining course descriptions and preparing advising guidelines that give the students information about the amount and nature of writing assignments, level of math that should be mastered before enrolling in a non-math course such as economics or accounting, and recommendations of concurrent courses that strengthen students' communication or computation skills in which the student might enroll if skills are below entrance expectations.
4. Finally, since this study was only a pilot, we ought to continue formal examination of factors relating to student success. Taking these steps and getting these outcomes would be consistent with DEAC's goals--students performing better and instructors experiencing the pleasure of having better informed and prepared students while being more aware of their expectations and ways to help students master course content.

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